The Boston Computer Society

SINCLAIR-TIMEX USER GROUP NEWSLETTER

Volume 3, Issue 5 | Summer '84

APRIL, MAY AND JUNE MEETING HIGHLIGHTS

Don't confuse the temporary absence of this newsletter as a dwindling of the Sinclair User Group. We've been meeting steadily and having some of the most interesting meetings ever.

At the April meeting Roy Glaser described a series of programs he's developing for the 2068 that will allow you to print out text sideways. ith this you can use your Timex printer for documents of more than 32 columns.

Also in April, Mike Coughlin recapped the various problems that can be encountered when Saving and loading programs on the 1000. Mainly, he explains, problems result from a mis-adjustment of the "azimuth". Catch him or Dick Forsyth at a future meeting to learn how to make this adjustment.

In May the UMASS commencement forced us to hold our meeting downstairs in the small science auditorium. Henry April, of EZ Key, displayed and demo'ed the ill-fated Timex modem, which he is now selling under a different name. (EZ Key, 773-1187). It seems to work fine.

The remainder of the meeting consisted of a free-form discussion of the condition of the Timex Sinclair community. The consensus was that there are still alot of us still interested.

SINCLAIR QL PRESENTED AT BCS GENERAL MEETING.

Nigel Serle, of Sinclair Research Limited, spoke to the BCS May General Meeting to make the U.S. introduction of the Sinclair QL.

Based on the sophisticated Motorola 68008 microprocessor, the QL is a very powerful computer. In Europe it is promoted and used as a business community although in the U.S. Serle noted that it would be marketed as a "high-end" educational and home computer.

The QL, which is expected to become available in the fall and will cost $500, comes bundled with four very impressive software packages. A word-processor, a spreadsheet, a database, and a graphics (charts) program. The computer and all the software support impressive color graphics. Two built-in "microdrives" supply the QL with 100K+ each of disk type storage and although the machine comes with 128K of built-in main memory it can be expanded up to 512K.

It will be interesting to watch the progress of the QL after it is released in the fall. It will be priced at approximately $500.

JGHIII

The June meeting returned to the large auditorium with a presentation by Will Stackman about G. Russell's voice recognition system for the ZX81/TS1000. This product is explained in more detail elsewhere in this issue.

JGHIII

M E R G E " "

It's taken a while to get this issue together but the bugs have been worked out of the production process and there should be regular monthly issues starting in September. (What! Is this all we get this summer ?)

Not if we get it together. The S-TUGN is looking for material for a special issue to be mailed before Labor Day. We need your articles focussing on where the micro-micros might be going and how you're going to get there. The defiant optimism evident when TIMEX closed the shop must give way to constructive planning. Last year at this time, the Celebration was already more than a glimmer in Sue Mahoney's eye. We have an chance to make the same kind of impact this year, perhaps at the East Coast Computer Faire, perhaps by some other more imaginative means. It will be up to you.

Send articles, letters, even ideas for articles to Will Stackman, 210B Summer St., Somerville MA 02143. Deadline -the August 15th meeting.

WJS 15 July '8

TS1000 Compat. Hrdwre: **MINDWARE** MW100 dt mtrx prntr,1.76 in.wide paper,16cps,incl.power,x ppr+rib Instr. ex.cond $50. PRO KEYBOARD 6 usr def kys,full spce, 47QWRTY key,ex.cond $40. eve. 986-5958

WANT TO BUY A CLASSIFIED ? SELL SURPLUS HARDWARE, SOFTWARE, OR SUPPLIES ? PERSONAL ADS ONLY TO **BCS** MEMBERS. SIX LINES $3 CONTACT EDITOR.

**Dave woods will discuss Z80 & ROM routines at 2 Aug MC meeting.

BEEP NOTE

To really hear the BEEPs on your 2068, connect a miniature 9v amplifier, such as RadioShack's $10 Archer#277-1008 to the mike port. Incidently, while you can overload a mini-amp with BEEPs, the signal from the synthesizer chip is too weak and noisy. SOUND must be played through a more sensitive and powerful hifi unit.
NOTE: We are all interested in details concerning SOUND; notably the Envelope (Channels 11, 12 & 13). wjs

MACHINE CODE NOTES

The Machine Code subgroup went to watch fireworks instead of meeting in July. June's meeting was a pot-ourri. Chuck Ludinski presented a schematic for a loading filter for the TS2068 based on a small op-amp. We'll publish specifications in our next issue. He also sketched out a Centronics interface which could be constructed quite inexpensively. All you have to do is write the driver.

John Kemeny brought a copy of "Death Chase" and the arcade urge was rampant. Another member brought an interesting tank battle currently written entirely in BASIC and still very difficult to beat. The DAZY project is still open for all MC mavins. It would make an impressive item for the East Coast Computer Faire. Next meeting at MITRE C-Building cafeteria, 7 pm, Thurs. August 2 .

The Boston Computer Society

This newsletter is produced to inform group members of the agenda and logistics of future meetings, as well as to recap and amplify the information provided at the meetings. It also provides a forum for members and interested parties to communicate what thay have learned or developed relating to Sinclair and Timex computing. Meetings are open to the public (non-member admission is $3); however attendees are encouraged to join the Boston Computer Society (BCS) This newsletter is free to members. Back issues are one dollar each.

DIRECTIONS TO MEETING: The S-T User Group meets in the Large Science Auditiorium (Room 8/2/009) of the University of Massachusetts, Boston Harbor Campus. It is located only 3 miles from downtown Boston and easily accessible by public and private transportation. From the north or west, take the Southeast Expressway to Exit 17.

Turn left onto Columbia Road. Follow construction signs to get to Morrissey Boulevard in the direction of UMASS and the Kennedy Library. Bear right on traffic island, get in the right two lanes, following UMass/Boston signs. Turn left at the light into Campus. From the south, take Morrissey Boulevard northward to the campus. On the MBTA, take the Red Line (Ashmont Train) to Columbia Station. Transfer to the free University shuttlebus in the T parking lot.

The Sinclair TIMEX User Group

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The Sinclair Timex Newsletter is published monthly by the Sinclair Timex User Group of the Boston Computer Society. Membership in the BCS is $24 per year which includes a subscription to its magazine "The Computer Updata" and subscription to two of its group newsletters (such as this one).

Advertising space is available in this publication on a limited, first come first served basis. The rate is $60 per quarter page. At this time no other ad sizes are available. For detailed rate and discount information contact the Advertising Manager or the Publisher.

SECURITY BLANKET

by John Kemeny

You may believe that the previous security routines will prevent users from listing and copying your programs. No! It will only prevent users from stopping a BASIC program that is running. While it is relatively easy to have a program LOAD from tape so that it's running, it is far more difficult to force it to run or else. (In fact, the entire business of creating and breaking "unlistable" programs is like the Spy vs Spy series in Mad magazine. Unfortunately for Sinclair-Timex software writers, users can always get the last laugh by making tape-to-tape copies of programs. And, while T/S 1000 tapes at least don't copy well this way, T/S 2068 tapes do.)

To SAVE a program so that it is "autorunning" include:

```
9990 SAVE "program name"
9992 GO TO 10
```

This assumes the program starts at line 10. Use GO TO 9990 in immediate mode to SAVE. The T/S 2068 has a simpler command:

```
SAVE "program name" LINE 10
```

With the T/S 1000 there is a neat way to force the program to be come up running or crash! Pick a critical system variable, call it "svar." Then find a value which causes the system to crash when reading user input.

```
9990 POKE svar, crash-value
9992 SAVE "program name"
9994 POKE svar, old-value
9996 GO TO 10
```

This technique would seem to work for the T/S 2068, and does as long as the user only tries to LOAD a program. But the 2068 has a command, MERGE, and this command only loads the BASIC program, not the system variables!

The lesson is there is no such thing as blanket security. It's enough to make us hackers crawl under our security blankets.

WORD-WRAP

One way to make programs more user-friendly is insure that on-screen instructions do not wrap around the screen in the middle of words. The following routine from the ZX Printer User's manual offers a BASIC solution.

```
10 REM TEXT EDIT
20 IF LEN A$>32 THEN GOTO 50
30 LPRINT A$
40 RETURN
50 LET C=0
60 IF C=32 THEN GOTO 110
70 LET B$=A$(32-C)
80 IF A$(33-C)=" " OR B$="." OR
   B$="," OR B$=":" OR B$=";" OR
   B$="?" OR B$=CHR$ 11 THEN GOTO
   120
90 LET C=C+1
100 GOTO 60
110 LET C=0
120 LPRINT A$( TO 32-C)
130 LET A$=A$(33-C TO )
140 IF A$(1)=" " THEN LET A$=A$
    (2 TO )
150 GOTO 20
```

Note that text to be edited is stored in A$. To send output to screen rather than to a printer, merely change LPRINT in lines 30 and 120 to PRINT.

You can of course get the same result by very careful typing but if you have the memory available, the routine above is far more elegant.

(Supplied by Eldon Weiss, Randolph MA.) wjs

PASSWORD SECURITY

by John Kemeny

This article could also be titled "if you break my code you will break my heart." The BREAK key is used to interrupt a BASIC program. The program halts with some error report on the bottom of the screen. In fact, the STOP statement is just a type of BREAK. Machine code programs ordinarily can not use the BREAK feature.

In many applications you do not want the user to be able to BREAK into your program. For example, you may not want the clerk entering sales slips into a program that calculates payroll commissions to have access to sensitive salary data. But more generally, you don't users who accidentally hit BREAK to be confronted with a screenful of listings.

The T/S 2068 has a simple way to keep users from BREAKing a program, namely by inserting, as the first program line:

```
10 ON ERR GO TO 10
```

This causes conditions which would otherwise generate an error report to execute GO TO 10 instead. Interestingly, a normal termination, where the program goes past the last line, will halt the program--so put a STOP statement at the end when using this technique.

Unfortunately, this simple technique prevents anyone from BREAKing a running program. A better method would allow users who knew a "secret" password to be able to stop the program. The following short routine does just that.

```
10 ON ERR GO TO 9000
20 REM your program here
30 GO TO 20
9000 REM password routine
9010 LET p$="secret"
9020 BEEP 1,1
9030 LET q$=""
9040 LET a$=INKEY$
9050 IF a$=INKEY$ THEN GO TO
     9050
9060 LET q$=q$+a$
9070 IF LEN p$>LEN q$ THEN GO TO
     9040
9080 IF p$=q$ THEN ON ERR RESET
9090 ON ERR CONTINUE
```

The variable p$ holds the password and can be changed to any string. Lines 9030 to 9070 are used to debounce the user's input. It takes advantage of the fact that null string "" can be added to the input q$ at will. The BEEP at 9020 is necessary to indicate to the user to start entering the password. This is because the BREAK feature is disabled while in the routine, so the user can get out of sync.

Quote from Sir Uncle Clive

"We have been told we are at the start of the second industrial revolution...I agree with the idea though it might be morer useful to consider the process we are experiencing as the third rather than the second revolution" Opening for remarks made to the Congressional Clearinghouse of the Future, Wash.D.C., 3/29/84.

Has anyone told the Democrats ?

**Rumor of the Week. Improved ZX81 to be made in Asia for world market. Does that include us ?

The ZX81/TS1000 is notorious for failing to load tapes. This is not due to flaws in the tape recorder, but is caused by an unsteady signal produced by the computer. Of course your recorder must be in good condition, with the head properly aligned. But even when everything is working correctly, the loading process is still uncertain.

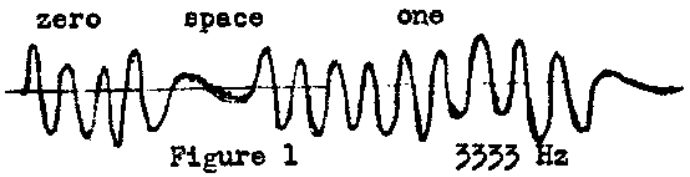


Figure 1 3333 Hz

Figure 1 shows the signal recorded on tape and displayed on an oscilloscope. Notice how the blank space between the zero and one bit has a signal that is close to the height of a pulse. What cannot be shown on a diagram is how the pattern is constantly shifting and indicating the presence of low frequency noise. Eliminating this noise makes tape loading much more reliable.

There are two commercial products that make tape loading easier. The Winky Board uses light emmiting diodes to show exactly where to set your tape recorder playback volume and also includes a simple filter. The Z-Dubber uses a more elaborate active bandpass filter and converts its output to a square wave. (See Computers & electronics, Sept. 1983)

I wanted to produce a tape that was easy to use and I had an adjustable audio filter for my stereo system. I dubed various computer tapes thru my audio filter and observed the results on my oscilloscope. Fig. 2 is the result of cutting all frequencies below 250 Hz and boosting frequencies near 3500 Hz. The

Figure 2

filtered tape was much easier to load than the original. Of course there is a problem. Notice that there are four pulses in the negative direction but three large pulses and two small ones in the positive direction. When I made tapes with this polarity reversed, they would not load.

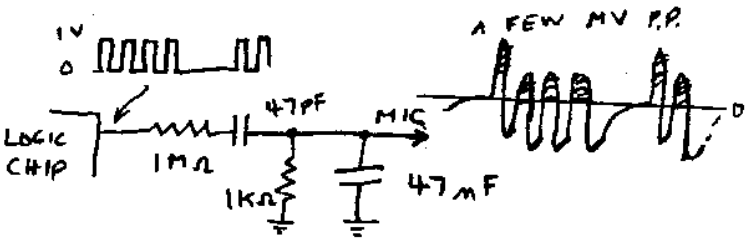


Figure 3

Figure 3 shows the tape output circuit from the ZX81 with associated waveforms. The square wave from the custom logic chip is very steady. The negative pulses going to the tape recorder are also steady. The positive pulses vary greatly; alternate pulses are nowhere near being equal, and the pattern changes with time even with a series of all ones or zeros. The recording process spreads the irregularity over the entire signal.

It is unfortunate that a better tape loading circuit was not designed into the ZX81. An improver filter would be very desirable -- something simple but better than two resistors and capacitors. The only easy way to deal with tape loading problems is to try different recorders until you find one that likes the peculiar signal of a computer program.

MICHAEL COUGHLIN
617-354-5683

SPEECH RECOGNITION SYSTEM
from "G.Russell Electronics"
RD 1, Box 539, Center Hall,
Penn. 16828 (814-364-1325)

As the personal computer scene changes, one of the most likely uses for ZX81, TS1000-1500 machines is for dedicated laboratory ,control, or testing equipment. Brad Bennett's "Speech Recognition System" sent for review and demonstrated at the June meeting is an interesting example of one such application.

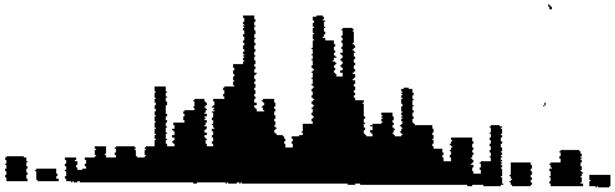
The SRS is a small hand-held microphone with an integral amplifier powered by two 9V "transistor" batteries plus a software cassette.The mike/amp produces a signal equivalent to the LOADing input from a cassette recorder with no difficulty. The software tape, a six function demo and a shorter applications routine was a problem.

None of my recorders could LOAD either side of the tape supplied, even with the use of a Winky Board! Listening to the cassette revealed excess noise and muffled sound. Inspection of the signal on Mike Coughlin's oscilloscope showed a distorted and fuzzy signal. However, using one of his well-adjusted tape players we finally LOADed the programs and made usable copies. In fact, both tapes I have purchased from "G.Russell" in the past have the same noise problem and present LOADing problems. I can only assume that their duplicating and/or tape storage need upgrading.

The demo program performsd as advertised; a rudimentary speech recognition system. Its ability to distinguish between similar vowel sounds is minimal. (See illos.) Incidently, it would be nice not to have to break the program to COPY the sound histogram.

The slim xerox-reduced documentation notes that the computer filters lower frequencies. The 5 & 8 "arrow" keys can be used to shift the screen image to inspect the all 255 channels (only 64 are displayed at one time).

NO



<TOOT>

Up to ten short words can be stored and with luck distinguished between. Practice is required to get even 50% results, however. Musical tones and distinctive noises have a higher success rate.

The demo program can be modified to save sound files by increasing the C variable array to 1412 (Line 10). Each sound to be recognized is an average of eight inputs, but no display is shown, a feature which would help evaluate the system.

The authors point out that the SRS is a limited system from which the user can develop applications. At $35 assembled, $25 in kit, we might hope for longer, more legible documentation and better tapes. See SYNC V.3 #6 (Nov/Dec. 83) for schematic, demo.program, and MC routines. Tape and documentation are available from "G.Russell" for $9.95.

It is possible to use the software with a small battery amp, like the Radio Shack add-on we use to hear the TS2068 Beep and an ordinary cassete mike. Better results can be gotten with a high-end sensitive mike, such as those used with video recorders.

Will Stackman June '84

YES

The Boston Computer Society

Annual membership in The Boston Computer Society includes mailings from any two user/interest groups (attendance at monthly meetings is unlimited).

- ☐ Regular (1 year), $24
- ☐ Regular (2 year), $45
- ☐ Regular (3 year), $62
- ☐ Youth (under 18), $15
- ☐ Senior citizen, $15
- ☐ Family, $36
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- ☐ 80/Boston (TRS-80)
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- ☐ Hewlett-Packard
- ☐ IBM PC
- ☐ Kaypro
- ☐ Macintosh
- ☐ NEC
- ☐ Osborne
- ☐ Otrona
- ☐ Sinclair/Timex
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- ☐ Victor
- ☐ Other _____

Sign me up for these special interest groups:

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- ☐ Investment
- ☐ Legal
- ☐ Logo
- ☐ Medical/Dental
- ☐ Pascal
- ☐ Real Estate
- ☐ Robotics
- ☐ Science & Engineering
- ☐ Social Impact
- ☐ Telecommunications
- ☐ Training/Documentation
- ☐ Unix & C
- ☐ Other _____

THE COMPLEAT GAMER
or Tim Hartnell gives it all away

The book bargain of the season is Tim Hartnell's generic **Giant Book of Computer Games**, a compilation of most of the standard game for which his computer-specific books are much appreciated. All programs are listed in Microsoft BASIC and have been tested on an IBM PC. (There's no accounting for taste.)

Conversion to "BASINC" generally involves no more than using a string function to carry a small data line and converting LEFT$, MID$, or RIGHT$ into our more generalized (TO) function. All the algorithms are here in clear and simple form. Programmers needing further conversion help may want to use Bird's **Converting to T/S BASIC** from Wayne Green Books.

Even the price is right! This "Giant Book" is a Ballantine large paperback listed at $7.95, and generally stocked at most discount bookstores.

ISBN 0 - 345 - 31609 - 6

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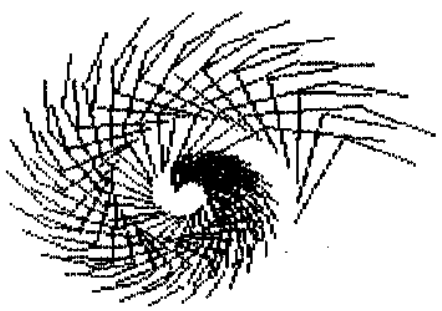

Next Meeting: August 15, 1984